

PROGRESS WITH THE FLYING MACHINE.

Working Out the Man-Flight Problem Along Scientific Lines Near Chicago.

The day is almost at hand when man will dispute with the bird for supremacy in the air. For hundreds of years his ambition has been at work with such persistency of effort that he now begins to see the end. He has grappled with the invisible forces of the atmosphere, sometimes blindly, but always courageously; generally to meet with disappointment, but happily with enough success to keep alive his determination to master the most difficult of all problems in physics. Lives have been lost and fortunes have been expended in the pursuit of this baffling question of man-flight. Ridicule has been heaped upon the heads of those who sought to cope with the feathered messengers of the air, and their sanity questioned by the world at large.

The advancement made toward the full solution of the problem of man-flight during the year 1896 was greater than that of any previous year, and attracted the widest attention among scientists. Probably more interest centered in the experiments conducted thirty miles southeast of Chicago on the shore of Lake Michigan by Octave Chanute, of Chicago, than anywhere else. The prominent position occupied by Mr. Chanute in the scientific world was accepted as a guarantee that he had faith in his experiments, and that he had no other purpose in view but to demonstrate certain principles involved in the problem.

At the time he was thus engaged Mr. Chanute observed much caution in his utterances concerning the results obtained. Fearful lest his conclusions might not be properly formed, or that he might be misunderstood, he refrained as far as possible from committing himself on the subject further than to say his experiments were very satisfactory. Since then he has gained courage, so to speak, and has become enthusiastic over what has been accomplished. He is now confident that the way is clear for the solution of the problem, and modestly takes to himself a goodly share of the credit for pointing the way. He claims that his experiments have marked out the best lines for investigators to follow, and numbers them as follows in the order of their importance:

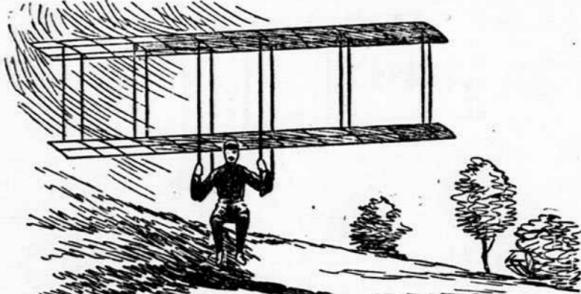
1. The development of the self-propelled aerodrome.
2. The development of the motorless air sailer.
3. The development of the motor.

During the past week the experiments of last year have been renewed near Dane Park, Ind., and Mr. Chanute has been almost a daily visitor to the scene of action. His interest in the result will not let him stay away longer than one day for several reasons. One reason is that the machine being used is one of his own invention in its most important details, and another is that the experiments are following the second line of investigation, which he laid down as necessary for the solution of the problem of man-flight. It is said that Mr. Chanute is the real one who is conducting the experiments, but this he denies in favor of A. M. Herring, a young man of considerable scientific knowledge, who was associated with Mr. Chanute last year in his extensive experiments at the same place.

The machine with which Mr. Herring is now experimenting daily represents the ideas of both himself and Mr. Chanute. It belongs to the same class as the machine which the late Otto Lilienthal, of Berlin, brought out in 1894 and in the use of which he met his death last year. It might well be termed a flying machine, and yet this description does not fit accurately. It

machine to bring the center of gravity under the center of air pressure, it was constructed with a view to bringing the center of pressure over the center of gravity by the aid of wings moved automatically. This machine had twelve wings, each six feet long and three feet wide, and each pivoted to a central frame. It had a total wing surface of 177 square feet, and weighed thirty-seven pounds.

By a process of evolution this apparatus became the machine in use at the present time with which such remarkable results have been obtained. Experiments showed many defects in the machine, and it was rebuilt on a different principle. The twelve wings were discarded, and in their stead were substituted three superimposed



A GOOD START.

concave surfaces, each sixteen feet long and four feet three inches wide, with an aggregate surface of nineteen square feet. Attached to the rear of this machine was a combined horizontal and vertical rudder, designed by Mr. Herring as a result of his frequent trials of the machine. In the course of the experiments it was found necessary to remove the lower surface, and this left the present machine.

The several changes therefore reduced the sustaining surface of the machine from 177 square feet to 135 square feet. The weight was lowered at the same time from thirty-seven pounds to twenty-three pounds. This general reduction did not impair the strength of the machine, while at the same time it improved its efficiency to a remarkable degree. Repeated trials showed the machine capable of sustaining an aggregate weight of 178 pounds, this figure representing the combined weight of the operator and the machine. The frame is constructed of spruce wood, braced with fine piano wire, and the concave surfaces are formed by varnished silk stretched over the frame to the highest tension.

Will this machine fly? Mr. Chanute will answer this question by replying that was never intended to fly. He will inform those asking the question that the machine is made for experimental purposes solely, with the end in view of developing the motorless air sailer. At the same time, Mr. Chanute might say, the experiments may lead to a solution of the most important part of the problem of man-flight—the maintenance of the equilibrium of the machine under all circumstances. He holds that this problem must be solved first. It has been demonstrated to his satisfaction that until automatic stability at all angles of flight and conditions of wind is evolved and safety thereby secured it would be premature to seek to apply a motor or a propelling instrument to a full-sized machine.

The ordinary observer would answer that the machine does fly, never-

were indescribably thrilling and delightful.

All the flights begin from an eminence, the numerous sand hills near Dane Park offering all the opportunities desired for starting. Another requisite is that the operator must start facing the wind, although with proficiency good results may be obtained with the machine traveling at an angle with the wind. Those who have seen a buzzard or most any other large bird begin a flight from the surface of the earth will have noticed that the bird invariably faces the wind and runs a few steps before rising. For the same reasons the operator of the Chanute flying machine must face the wind, holding the machine over his head, then run a few steps down the side of the hill on which he stands and finally give a jump outward into space as though he never expected to come down. He will be doing nothing more, in effect, than he did when he jumped from the top of a fence in boyhood days with an umbrella over his head.

The wind rushing against the lower sides of the two surfaces of varnished silk holds the operator suspended, while the angle at which he holds the surfaces either impels it forward or retards its motion. Sometimes a strong gust of wind comes along when least expected and suddenly raises the machine higher than the starting point. But for the automatic rudder this

might prove disastrous to the operator. He would, in all likelihood, turn a back somersault with the machine and get badly hurt. Again, a blast of air from above might strike on the top of the machine and cause it to shoot downward at a terrific rate of speed. This is what happened to Lilienthal last year, and was the cause of the accident which resulted in his death.

The line of flight of the machine in the hands of such a skillful operator as Mr. Herring may be controlled very largely. He has demonstrated time and again his ability to steer the machine in broad curves by simply shifting the weight of his body from one side to another. Last Monday he succeeded in describing a compound curve during a flight of about 300 feet, and landed with his back almost completely turned to the wind. It has also been demonstrated that the machine can be made to travel almost at right angles with the wind at a high rate of speed.

Flights have been made in all sorts of winds, the speed of which varied from ten to twenty-one miles an hour. The latter wind is higher in its speed than any gliding machine was ever tried in before and tested the steady-



ALBATROSS WHICH FAILED.

ness of the machine most thoroughly. The speed at which the machine travels rests very largely with the operator and depends upon the angle of descent from the starting point. When he finds that he is approaching the ground too swiftly it is only necessary for him to tilt the front of the machine upward, when its speed will be immediately checked, and a landing can be made in safety. The range of flight is also very largely within the control of the operator, one who is skillful being able to alight within ten feet of any spot indicated while the wind maintains an even rate of speed. The longest flight recorded is the one made this year by Mr. Herring, which was almost 900 feet. Another flight of 600 feet was made last week.

Long flights are not the aim of the men who are conducting the experiments with the gliding machine. They are seeking to arrive at intelligent conclusions concerning the problem of automatic stability more than anything else, and it is claimed by Mr. Chanute that many new facts have been discovered bearing upon this question. In anticipation of an early solution of the question Mr. Herring is hard at work on a motor which he hopes to be able to apply to the gliding machine. An evidence of the faith that is within him is shown by the fact that he predicts that an air ship will be constructed within another year which will fly to New York with but four stops on the way to replenish the stock of fuel.—Chicago Times-Herald.

Rewarded For Finding a Feather.

The Gazette of Moscow says that while the King of Siam was passing through the streets of that city a white feather fell from the plume of his helmet, and was picked up by the peasant Toukianow, who is in the service of M. Koch. Toukianow hastened to restore the feather to the chief of police. He was greatly surprised several days later upon receiving from this official, in the name of His Siamese Majesty, a casket containing a portrait of the King and a massive gold chain decorated with a token of the same metal bearing the arms of Siam in enamel. Toukianow has not yet recovered from this unexpected piece of good fortune.

SHE IS A MILITIA CAPTAIN.

Two States Bestow a Title Upon a Chivalrous Young Woman.

Miss Mamie Telford Combs, better known now as Captain Combs, has created a sensation among military people. When the Fourth Regiment of Missouri National Guards was camping in Carrollton in the summer



CAPTAIN COMBS.

of 1896 Miss Combs, who was visiting her sister with a number of girls from various States, went daily into camp. Miss Combs took such an unfeigned interest in military affairs that she soon found herself on a footing of camaraderie with all the soldiers in camp. Her favoritism, which was unusual, culminated in a suggestion to adopt her as "daughter of the regiment." Fearful, perhaps, of a complication of relationships that might ensue if their daughter offered to be a sister, etc., the boys begged that she be given a rank on the grounds that only a resident of Missouri should be accorded a daughtership. Accordingly Colonel Corby accepted her as a member of his staff, she was designated captain, and upon camp breaking up she was duly commissioned.

Of course, when she returned last fall to her home in Lexington, Ky., accounts of the "honors thrust upon her" by Missouri were heralded abroad. Infected with the fever of enthusiasm, Kentucky, her adopted State, vested her with the same title, and now she is commissioned captain by both States.

Captain Combs is a handsome woman of commanding appearance, and in her dark blue uniform, which offsets to a nicety her exceptional blonde beauty, she could not fail to attract attention anywhere. Doubtless Miss Combs inherits her military instinct, as she is a granddaughter of that character well remembered in the history of Kentucky, General Combs.

Influence of Music on the Hair.

An English statistician has recently been engaged in an original task, that of studying the influence of music on the hair. The investigator establishes, in the first place, that the proportion of bald persons is eleven per cent. for the liberal professions in general, with the exceptions of physicians, who appear to hold the record for baldness, which is thirty per cent. Musical composers do not form an exception to the rule, and baldness is as frequent among them as in the other professions. The cornet-a-piston and the French horn act with surprising surety and rapidity; but the trombone is the depilatory instrument par excellence. It will clear the hair from one's head in five years. This is what the author calls "baldness of the fanfares," which rages with special violence among regimental bands.—Scientific American.

Odd Use for a Flower Pot.

Frequently ice is hard to keep at hand with campers and picnickers and the food suffers for the want of it. A common clay flower pot may be made good use of in keeping the butter cool and firm. Place the pot over the plate of butter and wrap around it a cloth wet in cold water, sprinkling water over the outside of the cloth as it becomes dry. Milk will remain cool and sweet if treated in the same manner.

Prehistoric Mexican Doll.

The sketch illustrates a prehistoric Mexican doll unearthed by a French anthropologist, Dr. Chipault. The in-



A DOLL OF ANCIENT DAYS.

side is hollow and contains a rattle, which proves that prehistoric children were not unlike the little ones of today.

Sprigg—"Hello, old man, I'm awfully glad to see you out again. I heard that the doctors gave you up." Bowles—"Yes, I guess I'd have died if they hadn't."—Cleveland Leader.

WORN BY LITTLE ONES.

SEASONABLE AND STYLISH GARMENTS FOR CHILDREN.

Coat Made of Heavy-Weight Material For Fall and Winter Wear—A Suit For a Little Girl That is Simple and Yet Stylish—Boy's Russian Blouse Costume

In spite of the fact that much bright color has been and continues to be worn, writes May Manton, white is always given first choice for our tots'



CHILD'S SHORT COAT.

wear. The charming little coat shown in the illustration is made of heavy-weight drap-d'ete in a soft, creamy tone and is lined throughout with silk

shirtings that run from the shoulders to a point at the front and form a simulated yoke. The sleeves are in Bishop shape and one-seamed, below. At the shoulders the fulness simply gathered, but the wrists show gauged shirring, which like that at the neck, shows narrow black velvet ribbon over each stitching. With it is worn a deep collar and cuffs of narrow batiste which also makes the frill at the left side of the blouse. The material for the frock is a mixed plaid in gay coloring showing a line of ecru with which the soft tone of the batiste harmonizes to perfection.

The skirt is perfectly straight, the fulness being arranged in tuck shirring, which, like those of the bodice, show black velvet ribbon over each stitching.

To make this frock for a girl of eight years will require three and three-fourths yards of forty-four-inch material.

Boy's Russian Blouse Costume.

This stylish little suit is designed for small boys from two to four years. As represented it is made of serge in a deep shade of cardinal with white serge for the collar and cuffs. Narrow braid enters into the decoration, and a jaunty little Tam o'Shanter cap accompanies the costume. A high-necked and sleeveless under-waist that is shaped with shoulder and under-arm seams and closing in the back, supports the kilt skirt that is deeply hemmed and laid in plaits. The blouse is simply adjusted by shoulder and under-arm seams. A casing is sewed at the waist line through which an elastic or tape is inserted to arrange the fulness which droops in the regulation blouse fashion. To the edge of the left-front a wide box-pleat is applied through which button-holes are worked to effect a closing, buttons being sewed



GIRL'S DRESS THAT IS SIMPLE AND YET STYLISH.

of the same shade. Warm for early fall wear it is sufficiently warm without interlining, but for genuine cold weather a layer of wadding between the cloth and the lining is essential. The short, snug body is fitted by shoulder and under-arm seams and opens at the left side where the closing is effected by handsome pearl buttons and button-holes. The skirt, which includes underlying plaits at the centre-back, is joined to the body, the lining being neatly hemmed over to conceal the seam. The sleeves are in Bishop style but narrow, having only one seam. The fulness is gathered at the shoulders and again at the wrist, where they are finished with pointed cuffs edged with a frill of ribbon and trimmed with a simple braid. The deep circular cape that falls in ribbon effect has a seam at centre-back and both it and the turnover collar are finished with braid and ribbon frills as are the cuffs. With the coat is worn a cap of soft silk.

To make this coat for a child of four years will require two yards of forty-four-inch material.

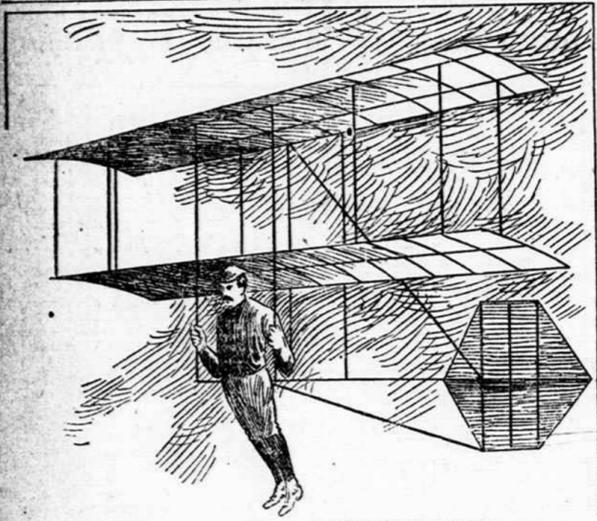
Dress For a Little Girl.

Nothing suits extreme youth so well as does simplicity, and the model shown in the large illustration, according to May Manton, has the merit of being absolutely simple while it is stylish at the same time. The bodice takes the popular blouse form, but is made over a plain fitted lining which ensures perfect neatness and the necessary warmth. The lining shows the usual number of pieces and seams, closing at the centre-front, but the blouse has shoulder and under-arm seams only and laps well over the left side where it closes invisibly and is finished by a frill. The back is quite plain, but the front shows gauged



BOY'S BLOUSE.

braid or machine stitching is the accepted finish.



PROFESSOR CHANUTE'S LATEST FLYING MACHINE.

is technically known as an aero-curve, or a gliding machine. Better still, it might be called an air coaster, for in its action it approached very closely to the motion of those machines known as roller coasters. The resemblance is carried still further in the application of the principles of operation.

It is one of three sailing machines invented by Mr. Chanute, including a steering apparatus designed by Mr. Herring. The first machine was based upon a reverse of the principles evolved in the Lilienthal apparatus. Instead of the man moving about under the

theless, after witnessing a day's experiments among the sand dunes. The distinction between sailing and gliding and flying would not appeal to any but the scientific mind while watching the "double-decker" travel through the air a distance of 200 yards with Mr. Herring hanging by his arms beneath. If the spectator was daring enough to tackle the machine himself and succeeded in getting the right kind of a start he would be willing to take oath that the machine flew. He would also be willing to testify that his sensations while the flight lasted